

WHAT IS CLAIMED:

1. A light emitting diode lighting assembly comprising:

a light emitting diode having a front luminescent portion and a mounting base, said mounting base having a heat transfer plate on a rear surface thereof and a first and second contact lead extending from the sides thereof;

an interior mounting die having a first end and a second end opposite said first end, said interior die being electrically conductive and thermally conductive, wherein said heat transfer plate is in thermal communication with said interior die; and

a lens for directing light output from said light emitting diode forwardly along an optical axis.

2. The light emitting diode lighting assembly of claim 1, further comprising:

an aperture in said interior die extending from said first end of said interior die to said second end, wherein said first contact lead of said light emitting diode is in electrical communication with said interior die and said second contact lead of said light emitting diode extends into said aperture.

3. The light emitting diode lighting assembly of claim 2, further comprising:

a circuit board mounted adjacent said second end of said mounting die, said circuit board including electrical circuit traces printed on one side thereof, said second contact lead of said light emitting diode in electrical communication with said circuit traces.

4. The light emitting diode lighting assembly of claim 3, wherein said circuit board includes control circuitry in electrical communication with said circuit traces.

5. The light emitting diode lighting assembly of claim 3, further comprising:  
an exterior enclosure, said exterior enclosure having a tubular outer wall, said outer wall forming a cavity for receiving and maintaining said interior mounting die, said light emitting diode and said lens in assembled relation; and

a power source having first and second contact leads, said first contact lead in electrical communication with said mounting die and said second contact lead in electrical communication with said circuit traces.

6. The light emitting diode lighting assembly of claim 1, said lens including, a total internal reflection collector portion, said collector portion of said lens comprising:

a rear surface;

an outer side wall; and

a cavity extending into said collector portion from said rear surface, said cavity having an inner side wall and a front wall, said light source disposed substantially within said cavity.

7. The light emitting diode lighting assembly of claim 1, further comprising:

an exterior enclosure, said exterior enclosure having a tubular outer wall, said outer wall forming a cavity for receiving and maintaining said interior mounting die, said light emitting diode and said lens in assembled relation; and

means for connecting a power source having first and second contact leads with said first and second contact leads of said light emitting diode.

8. A light emitting diode lighting assembly comprising:

a light emitting diode having a front luminescent portion and a mounting base, said mounting base having a heat transfer plate on a rear surface thereof and a first and second contact lead extending from the sides thereof;

an interior mounting die, said interior die being electrically conductive and thermally conductive, said interior die having a recess in a first side thereof configured to receive and retain said mounting base of said light emitting diode, wherein said heat transfer plate is in thermal communication with said first side of said interior die and said first contact lead is in electrical communication with said interior die, said interior die having an aperture therein extending from said first side of said interior die to a second side of said interior die opposite said first side, said second contact lead of said diode extending into said aperture;

a lens for directing light output from said light emitting diode forwardly along an optical axis, said lens including, a total internal reflection collector portion, said collector having a recess therein where in said luminescent portion of said light emitting diode is received within said recess; and

an exterior enclosure, said exterior enclosure having a tubular outer wall, said outer wall forming a cavity for receiving and maintaining said interior mounting die, said light emitting diode and said lens in assembled relation.

9. The light emitting diode lighting assembly of claim 8, further comprising:  
a mounting board installed adjacent said second side of said interior mounting die.
10. The light emitting diode lighting assembly of claim 9, wherein said mounting board is a circuit board with electrical circuit traces printed on one side thereof, said second contact lead of said light emitting diode in electrical communication with said circuit traces.
11. The light emitting diode lighting assembly of claim 10, wherein said circuit board includes control circuitry in electrical communication with said circuit traces.
12. The light emitting diode lighting assembly of claim 8, further comprising:  
a power source having first and second contact leads, said first contact lead in electrical communication with said mounting die and said second contact lead in electrical communication with said second contact of said light emitting diode.
13. A light emitting diode lighting assembly comprising:  
a light emitting diode having a front luminescent portion and a mounting base, said mounting base having a heat transfer plate on a rear surface thereof and a first and second contact lead extending from the sides thereof;  
a mounting die, said mounting die being thermally conductive, said mounting die having a rear surface, said mounting die having a recess in said rear surface

thereof and an aperture extending there through, said recess being configured to receive said mounting base of said light emitting diode, wherein said luminescent portion of said light emitting diode extends through said aperture;

a spreader plate, said spreader plate being thermally conductive, said spreader plate in thermal communication with said heat transfer plate of said light emitting diode and said rear surface of said mounting die, wherein said spreader plate conducts heat from said light emitting diode to said mounting die; and

a lens for directing light output from said light emitting diode forwardly along an optical axis, said lens including a total internal reflection collector portion at a first end thereof, said collector having a focal length and a recess therein where in said luminescent portion of said light emitting diode is received within said recess.

14. The light emitting diode lighting assembly of claim 13, further comprising:

a circuit board adjacent to said spreader plate, said circuit board in electrical communication with said first and second contact leads of said light emitting diode.

15. The light emitting diode lighting assembly of claim 13, said collector portion of said lens comprising:

a rear surface;

an outer side wall; and

a cavity extending into said collector portion from said rear surface, said cavity having an inner side wall and a front wall, said light source disposed substantially within said cavity.